

A. the merchandiser transmitting to the server via the computer network data indicating a number of the returnable containers returned from the merchandiser, and

5 B. the server renewing the inventory information database of the returnable containers based on the number of returnable containers returned to the manufacturer.

[0010] Both of the above preferred embodiments of the present invention can more effectively manage the inventory of the returnable containers and the products in the physical distribution-managing method according to the present invention.

10 Brief Description of the Drawings

[0011] For the better understanding of the present invention, reference is made to the accompanying drawings, in which:

FIG. 1 is a conceptual diagram showing a configuration of a computer system in the physical distribution-managing method in accordance with one preferred embodiment of the present invention;

15 FIG. 2 is a flow diagram of the information about the physical distribution in the physical distribution-managing method in accordance with one preferred embodiment of the present invention; and

FIG. 3 is a flow chart illustrating the procedures carried out in the physical distribution-managing method in accordance with one preferred embodiment of the present invention.

20 Detailed Description of the Invention

[0012] FIG. 1 is a conceptual diagram showing a configuration of a computer system in the physical distribution method in accordance with one preferred embodiment of the present invention. In this embodiment, the merchandiser 10, the server 20 and the manufacturer 30 are connected to a computer network 100 such as the Internet via a merchandiser terminal 11, a server terminal 21 and a manufacturer terminal 31, respectively. As the merchandiser terminal 11 and the manufacturer terminal 31, generally available personal computers can be used.

30 In this figure, only an example having one merchandiser 10 and one manufacturer 30 is illustrated, however, the system may consist of two or more merchandisers 10 and two or more manufacturers 30 being connected via the computer network 100 in the same configuration.

[0013] A case where Company A is in Japan as a merchandiser, Company B is in Japan and has the server 20, and Company C is in Thailand as a manufacturer 30 will be now described as a specific example of the physical distribution method according to the present invention as shown in FIG. 1. In this case, Company A of the merchandiser 10 in Japan sells aluminum wheels, Company C of the manufacturer 30 in Thailand manufactures the products, packs the products in the returnable containers so-called dunnages, and then sends the packed products to Company A, while Company A sends back the used dunnages to Company C.

[0014] FIG. 2 is a flow diagram of the information about the physical distribution in the above physical distribution-managing method in accordance with one preferred embodiment of the present invention. In this embodiment, Company A of the merchandiser 10 sends a purchase order, which also acts as a request to ship at least one product, to the server 20 via the computer network 100 while referring to the number of incoming products. When Company A receives a notice of dunnage shortage from the server 20 via the computer network 100, Company A sends back the dunnages to Company C of the manufacturer 30, and sends the number of the outgoing dunnages to the server 20 via the computer network 100. Company C of the manufacturer 30 ships the products in response to the request to ship at least one product sent by Company A of the merchandiser 10 via the server 20 and the computer network 100. When Company C receives a notice of product shortage from the server 20 via the computer network 100, Company C adjusts the inventory of the products.

[0015] Further, the server 20 compares the request to ship at least one product from Company A of the merchandiser 10 to inventory data comprising a product inventory database and a dunnage inventory database. When the product inventory is below a predetermined value, the server 20 sends a notice of product shortage as a product-shipping notice to Company C of the manufacturer 30. When the dunnage inventory is below a predetermined value, the server 20 sends a notice of dunnage shortage to Company A of the merchandiser 10. Further, the server 20 renews the above inventory data based on the dunnage inventory from Company A of the merchandiser 10 and the product inventory from Company C of the manufacturer 30. Information such as the inventory stocked at the warehouses and the depots or transit states at the container depots is preferably taken into consideration of

renewing the inventory data.

[0016] Procedures among the merchandiser 10, the server 20 and the manufacturer 30 in the physical distribution-managing system according to the present invention will be discussed in the next. FIG. 3 is a flow chart illustrating the procedures carried out in the physical distribution method according to the present invention shown in FIGS. 1 and 2. With reference to FIG. 3, the physical distribution system according to the present invention will be described.

5 **[0017]** Company A of the merchandiser 10 sends the request to ship at least one product to the server 20 via the computer network 100 using the merchandiser terminal 11 (step 1). The request to ship at least one product is made by the merchandiser 10 inputting, for example, product numbers, quantities, date and/or destinations on a monthly basis to the merchandiser terminal 11.

10 **[0018]** Then, the server 20 calculates a difference between an actual number of products in stock and a desired number of stock based on the request to ship at least one product and the inventory information database of the products (step 2). As a result of the calculation, if the product inventory is found to be below a predetermined level, the product-shipping notice is sent from the server terminal 21 to Company C of the manufacturer 30 via the computer network 100 to urge the manufacturer to make available the products (step 3). The product-shipping notice is effected by notifying of, for example, product numbers, quantities, date and/or destinations on a weekly basis. When Company C of the manufacturer 30 receives the product-shipping notice, Company C adjusts the product inventory after the shipment to be at a predetermined level, for example, by manufacturing a deficit in the products (step 4). Company C sends the product inventory data from the manufacturer terminal 31 to the server 20 via the computer network 100 (step 5). Then, the server 20 renews the inventory information database of the products based on the received product inventory data (step 6).

15 **[0019]** Then, the server 20 also calculates a balance between an actual number of Dunnages in stock and a desired number of stock based on the request to ship at least one product and the inventory information database of the Dunnage (step 7). As a result of the calculation, if the Dunnage inventory is found to be below a predetermined level, the Dunnage-returning notice is sent from the server terminal 21 to Company C of the manufacturer 30 via the computer network 100 to urge the